Job-Embedded Coaching
Professional Learning to Improve Math Instruction

Founded by Marilyn Burns, Math Solutions has been focused exclusively on supporting teachers in mathematics instruction for 35 years. Job-embedded coaching for individuals and teams of educators is the most effective way to sustain professional learning, improve instruction, and build capacity.
Students succeed in mathematics with solid thinking, reasoning, and sense-making skills. Improving students’ understanding of mathematics is at the center of Math Solutions coaching.

## Customized Coaching Services for Individuals and Teams

Our job-embedded coaching for individuals and teams drives innovation and instructional improvement and provides the tools for your teachers to transform theory into practical classroom practice.

**Individual Coaching:** Educators work side by side with Math Solutions coaches—enabling them to integrate new skills immediately into their practice.

**Team Coaching:** Builds a community of learners through collaboration. It is the fastest way to synchronize your teams across grade levels, share experience and expertise, and collaborate.

Math Solutions will also develop the coaching expertise of your teacher leaders and instructional coaches so they continue the growth for school-wide capacity.

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<tr>
<th>FOCUS</th>
<th>IDENTIFIED NEED</th>
<th>OUTCOME</th>
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</table>
| **Instruction**  | When there is a gap between teachers’ knowledge and their implementation of programs and/or instructional strategies, resulting in student learning gaps. | • Make intentional decisions about implementing research-based instructional practices.  
• Reflect on planning and instructional decisions.  
• Develop explicit questioning strategies to elicit student thinking and understanding.  
• Make instructional adjustments as needed.  
• Cultivate a growth mindset learning community using communication and feedback strategies. |
| **Content**      | When teachers need content-specific support to learn curriculum, assessment strategies, or pedagogy. | • Strengthen content knowledge.  
• Develop content skills to support effective instruction. |
| **Data**         | When teachers have access to assessments and data but do not yet use the available data to make decisions about classroom instruction. | • Analyze student results to plan for differentiated instruction.  
• Design and refine assessments.  
• Use instructional routines as a formative assessment tool to identify common patterns of student thinking and to adjust instruction accordingly.  
• Plan instruction in response to assessments and data. |
| **Lesson Modeling** | When teachers and leaders would benefit from observing, planning, and discussing highly effective lessons with an expert in math instruction. | • Lesson Pre-Brief—coach and teachers co-plan the lesson he/she will teach. The Math Solutions coach might teach or co-teach the lesson with the teacher.  
• The Lesson—Math Solutions coach teaches the lesson to a class of students, while teachers observe with a specific focus identified during the lesson planning sessions.  
• Lesson Debrief—Math Solutions coach facilitates as teachers collaborate to debrief the lesson with a focus on student learning and student misconceptions, identifying specific aspects and strategies used that supported student learning. Finally, the team reflects on next instructional steps for students. |
Math Solutions coaching is designed to deepen teachers’ math content and pedagogical knowledge in order to promote rigorous instruction for all students. Based on district goals and student work, coaches and teachers work collaboratively to set and meet goals to improve teaching skills and student learning.

Coaching is an art and a science. Planning, analysis of student work, and progress monitoring are an integral part of the coaching cycle.

### Instructional Support Blueprint

**School:** Sample School District  
**Math Solutions Coach:** Mike Simpson  
**Teacher:** Ms. Green  
**Visit Date:** January 15, 2015

**Part 1: Review District Goals and Complete Self-Reflection**

My current area(s) of focus, based on district goals and my own math classroom:

1. I will plan and implement rigorous tasks that are accessible to all students.
2. My students will respond to higher-level questions and engage in productive discourse using appropriate mathematics vocabulary that illustrates their thinking and reasoning.
3. My students will explain their reasoning and evaluate the reasonableness of their results using multiple approaches, multiple representations, and feedback from their teacher and peers.

### Part 2: Establish Instructional Focus

<table>
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<tr>
<th>Student Learning Target(s)</th>
<th>Coaching Recommendations</th>
<th>Target Date</th>
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| Students provide feedback to each other. | - Consider giving students a checklist to help in providing feedback for mathematical work.  
- Use sticky notes for students to provide feedback in the form of questions or ideas during gallery walks or analysis of student work.  
- Listen for and document feedback when it occurs during partner or small group work. | January–February 2015 |

**Coaching Recommendations**

- Initially, provide students with a list of questions that can be used to clarify or extend the activity.  
- Have students create an exit ticket, then exchange the ticket with another student to complete.  
- During partner discussions, the teacher makes notes of clarifying questions and shares with the entire group.

### Part 3: Classroom Visit Notes

**Success Areas**

- Students were using prior knowledge to make connections with content.  
- Some students were comfortable sharing their ideas.  
- Students were encouraged to explore their understanding of the concept.

**Other Notes or Follow-Up**

- Some classes are moving in the direction of listening to others during discussions.  
- Still working on how to differentiate the classroom and how to manage.

### Learning Environment

**BEFORE**  
- **At least once:** 10%  
- **Once:** 20%  
- **More often:** 30%  
- **Always:** 40%  

**AFTER**  
- **Always:** 100%

### Focus and Coherence

**BEFORE**  
- **Never:** 0%  
- **Rarely:** 0%  
- **Seldom:** 0%  
- **Occasionally:** 0%  
- **Often:** 100%  

**AFTER**  
- **Always:** 100%
The Instructional Practices Inventory—Best Practices for Teachers and Students

Based on 35 years of focusing exclusively on the teaching and learning of math, Math Solutions has identified four key areas of instructional focus to reach math achievement goals: learning environment, reasoning and sense-making, focus and coherence, and formative assessment. Math Solutions coaches will guide you to recognize what a model classroom looks like with examples for both teachers and students.

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<thead>
<tr>
<th>LEARNING ENVIRONMENT</th>
<th>Student Learning Practice</th>
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<tbody>
<tr>
<td><strong>Teacher Best Practice</strong></td>
<td><strong>Student Learning Practice</strong></td>
</tr>
<tr>
<td>Provides a respectful, safe learning environment in which mistakes are seen as an opportunity to learn.</td>
<td>Takes an academic risk and relies on their own thinking and the thinking of other students.</td>
</tr>
<tr>
<td><strong>Asks questions that both build and reveal new understanding of content and practice.</strong></td>
<td><strong>Uses multiple representations when solving problems, such as symbols, diagrams, graphs, words, etc.</strong></td>
</tr>
<tr>
<td>Makes appropriate tools available and encourages their use.</td>
<td>Communicate using appropriate mathematical language both orally and in writing.</td>
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<tr>
<td><strong>Selects learning experiences that represent a balance of conceptual understanding and procedural fluency.</strong></td>
<td>Work well in a variety of grouping structures.</td>
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<tr>
<th>REASONING AND SENSE-MAKING</th>
<th>Student Learning Practice</th>
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<tr>
<td><strong>Teacher Best Practice</strong></td>
<td><strong>Student Learning Practice</strong></td>
</tr>
<tr>
<td>Selects rigorous learning experiences.</td>
<td>Persevere in making sense of rigorous problems.</td>
</tr>
<tr>
<td><strong>Selects learning experiences that represent a balance of conceptual understanding and procedural fluency.</strong></td>
<td><strong>Uses multiple representations when solving problems, such as symbols, diagrams, graphs, words, etc.</strong></td>
</tr>
<tr>
<td>Makes learning experiences accessible to all students without compromising the rigor in the problem.</td>
<td>Understand math concepts and use procedures appropriately.</td>
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<td>Understands the expectation of the standard to be taught and its connection to previous standards; aligns the lesson to grade-level content and practice standards.</td>
<td>Connects their current learning to previously learned standards.</td>
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<td><strong>Uses data to make instructional decisions based on student need.</strong></td>
<td><strong>Evaluates the reasonableness of their results using feedback from the teacher or a peer.</strong></td>
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<td><strong>Teacher Best Practice</strong></td>
<td><strong>Student Learning Practice</strong></td>
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<tr>
<td>Identifies and communicates the learning target(s) of the lesson.</td>
<td>Articulate what they are learning and why.</td>
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<tr>
<td><strong>Uses data to make instructional decisions based on student need.</strong></td>
<td><strong>Evaluates the reasonableness of their results using feedback from the teacher or a peer.</strong></td>
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